

AMENDMENTS TO THE CLAIMS

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) In a system having a cable modem that is hosted by customer premises equipment, the customer premises equipment including a media access controller representing a data link layer of a cable modem protocol stack, and the cable modem representing a physical layer of the cable modem protocol stack, wherein the cable modem is connected to at least one communication device and a cable network, and ~~that~~ wherein the cable modem is configured to transmit outgoing data packets from the at least one communication device over the cable network and ~~that~~ is further configured to transmit incoming data packets that are received from the cable network to the at least one communication device, a method for automatically registering a new communication device with the cable modem, and in such a manner as to enable delivery of incoming data packets only to the one or more communication devices when the incoming data packets have corresponding destination addresses that are determined to be associated with the one or more registered communication devices, the method comprising the acts of:

preparing, by the media access controller, an outgoing data packet from the at least one communication device such that the outgoing data packet is compatible with a hardware abstraction interface layer between the data link layer and the physical layer of the cable modem protocol stack, the hardware abstraction interface layer comprising an application programming interface configured for separating hardware of the cable modem from software of the cable modem protocol stack;

transmitting the outgoing data packet from the media access controller to an interface of the hardware abstraction interface layer;

sending, by the interface, the outgoing data packet to the cable modem;

the cable modem receiving ~~an~~the outgoing data packet from the at least one communication device through the interface of the hardware abstraction interface layer, the outgoing data packet having an address that identifies the communication device;

the cable modem comparing the address with a list of addresses that identify any communication devices that have previously been registered with the cable modem;

upon the cable modem determining that the address is not included in the list, adding the address to the list of addresses, such that the communication device is automatically registered with the cable modem;

upon the cable modem receiving an incoming data packet from the cable network which includes a destination address, comparing the destination address of the incoming data packet to the list of addresses;

the cable modem transmitting, through the interface of the hardware abstraction interface layer, the incoming data packet to any of one or more communication devices that have been registered with the cable modem and that are associated with the destination address as determined by the list of addresses; and

the cable modem filtering the incoming data packet when the destination address is not associated with any of the one or more communication devices that have been registered with the cable modem, as determined by the list of addresses, and such that the cable modem effectively prevents the data packet from being delivered to any of the one or more communications devices through the cable modem.

2. (Previously Presented) The method according to claim 1, wherein the cable modem comprises a bridging component.

3. (Original) The method according to claim 2, wherein the act of receiving comprises the acts of:

the communication device writing the outgoing data packet to a buffer accessible by the bridging component associated with the cable modem; and

the bridging component accessing the outgoing data packet in the buffer.

4. (Previously Presented) The method according to claim 2, further comprising the acts of:

determining that the destination of the outgoing data packet is not destined for a communications device that is local to the cable modem; and

transmitting the outgoing data packet over a cable network

5. (Original) The method according to claim 2, further comprising the act of:

determining that the destination of the outgoing data packet is destined for a communications device that is local to the processing device; and

transmitting the outgoing data packet to the communications device that is local to the processing device.

6. (Original) The method according to claim 2, wherein the act of comparing comprises the act of the bridging component comparing the address with a list of addresses that identify any communication devices that have previously been registered with the bridging component.

7. (Original) The method according to claim 2, wherein the act of determining comprises the act of the bridging component determining that the address is not included in the list.

8. (Original) The method according to claim 2, wherein the act of adding comprises the act of the bridging component adding the address to the list of addresses.

9. (Original) The method according to claim 1, further comprising the act of the communication device generating the outgoing data packet.

10. (Previously Presented) The method of claim 1, further comprising the acts of:

determining that the communication device cannot share a buffer with the cable modem associated with the cable modem;

a bridging component creating a separate buffer for the communication device;
and

the communication device writing the outgoing data packet to the separate buffer.

11. (Previously Presented) The method according to claim 1, further comprising the acts of:

using the communication device for the first time to communicate over the cable network, so as to generate the outgoing data packet; and

the act of adding the address to the list of addresses resulting in the communication device being automatically registered by the cable modem.

12. (Previously Presented) The method according to claim 1, wherein the cable modem comprises at least a portion of the communication device, the method further comprising the acts of:

using the communication device for a first time to communicate over the cable network after a cable modem driver has been installed in the communication device; and

the act of using the processing device for a first time resulting in the generation of the outgoing data packet.

13. (Previously Presented) The method according to claim 1, further comprising the acts of:

recognizing that the destination address matches the address that has been added to the list of addresses; and

transmitting the incoming data packet to the communication device in response to the act of recognizing.

14. (Previously Presented) The method according to claim 1, wherein the act of receiving an incoming data packet comprises the acts of:

receiving the incoming data packet at the cable modem; and

transmitting the incoming data packet to a cable modem driver.

Claims 15 - 16 (Cancelled).

17. (Previously Presented) The method according to claim 1, wherein the cable modem is hosted by the processing device.

18. (Previously Presented) The method according to claim 17, wherein the cable modem is external to the processing device.

Claims 19 - 20 (Cancelled).

21. (Currently Amended) A computer program product for implementing, in a system having a cable modem that is hosted by customer premises equipment, the customer premises equipment including a media access controller representing a data link layer of a cable modem protocol stack, and the cable modem representing a physical layer of the cable modem protocol stack, wherein the cable modem is connected to at least one communication device and a cable network, and ~~that~~ wherein the cable modem is configured to transmit outgoing data packets from the at least one communication device over the cable network and ~~that~~ is further configured to transmit incoming data packets that are received from the cable network to the at least one communication device, a method for automatically registering a new communication device with the cable modem, and in such a manner as to enable delivery of incoming data packets only to the one or more communication devices when the incoming data packets have corresponding destination addresses that are determined to be associated with the one or more registered communication devices, the computer program product comprising:

a computer-readable medium carrying executable instructions that, when executed, are capable of having the cable modem perform the acts of:

preparing, by the media access controller, an outgoing data packet from the at least one communication device such that the outgoing data packet is compatible with a hardware abstraction interface layer between the data link layer and the physical layer of the cable modem protocol stack, the hardware abstraction interface layer comprising an application programming interface configured for separating hardware of the cable modem from software of the cable modem protocol stack;

transmitting the outgoing data packet from the media access controller to an interface of the hardware abstraction interface layer;

sending, by the interface, the outgoing data packet to the cable modem;

receiving ~~an~~ the outgoing data packet for transmission onto the cable network from the at least one communication device through the interface of the hardware abstraction interface layer, the outgoing data packet having an address that identifies the communication device;

comparing the address with a list of addresses that identify any communication devices that have previously been registered with the cable modem;

upon the cable modem determining that the address is not included in the list, adding the address to the list of addresses, such that the communication device is automatically registered with the cable modem;

upon the cable modem receiving an incoming data packet from the cable network which includes a destination address, comparing the destination address of the incoming data packet to the list of addresses;

transmitting, through the interface of the hardware abstraction interface layer, the incoming data packet to any of one or more communication devices that have been registered with the cable modem and that are associated with the destination address as determined by the list of addresses; and

filtering the incoming data packet when the destination address is not associated with any of the one or more communication devices that have been registered with the cable modem, as determined by the list of addresses, and such that the cable modem effectively prevents the data from being delivered to any of the one or more communications devices through the cable modem.

22. (Previously Presented) The computer program product of claim 21, wherein the executable instructions, when executed, are further capable of performing the acts of:

recognizing that the destination address matches the address that has been added to the list of addresses; and

transmitting the incoming data packet to the communication device in response to the act of recognizing.

23. (Previously Presented) The computer program product of claim 21, wherein the destination address does not match any address in the list of addresses, and wherein the incoming data packet is filtered.

24. (Previously Presented) The method according to claim 1, wherein the destination address does not match any address in the list of addresses, and wherein the incoming data packet is filtered.

Claim 25 (Cancelled).